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1: L42342. Mus musculus (clo...[gi:848991] [ProbeSet](#), [Related Sequences](#), [Protein](#), [Taxonomy](#), [LinkOut](#)

LOCUS MUSSOCHB 1618 bp mRNA linear ROD 06-JUN-1995

DEFINITION Mus musculus (clone NaCh bc 1.6 in pBS+) sodium channel mRNA, complete cds.

ACCESSION L42342

VERSION L42342.1 GI:848991

KEYWORDS sodium channel.

SOURCE Mus musculus (strain C3H) (clone: NaCh bc 1.6 in pBS+) cDNA to mRNA.

ORGANISM Mus musculus

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

REFERENCE 1 (bases 1 to 1618)

AUTHORS Jover, E. and Shah, V.

TITLE Mouse sodium channel clone BC in pSB+

JOURNAL Unpublished (1995)

FEATURES

source

Location/Qualifiers

1..1618

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CDS

47..1618

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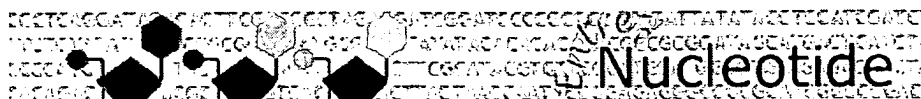
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Revised: October 24, 2001.

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1: M81758. Homo sapiens skel...[gi:338212]

Related Sequences, OMIM, Protein, PubMed, Taxonomy,
UniSTS, LinkOut

LOCUS HUMSKM1A 7823 bp mRNA linear PRI 13-JAN-1995
DEFINITION Homo sapiens skeletal muscle voltage-dependent sodium channel alpha subunit (SkM1) mRNA, complete cds.

*ACCESSION M81758

VERSION M81758.1 GI:338212

KEYWORDS transmembrane protein; voltage-dependent sodium channel alpha subunit.

SOURCE Homo sapiens adult skeletal muscle cDNA to mRNA.

ORGANISM Homo sapiens

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

REFERENCE 1 (bases 1 to 7823)

AUTHORS George, A.L. Jr., Komisarof, J., Kallen, R.G. and Barchi, R.L.

TITLE Primary structure of the adult human skeletal muscle voltage-dependent sodium channel

JOURNAL Ann. Neurol. 31 (2), 131-137 (1992)

MEDLINE 92246457

PUBMED 1315496

FEATURES

Location/Qualifiers

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Revised: October 24, 2001.

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1: M26643. Rat skeletal musc...[gi:205651]

Related Sequences, Protein, PubMed, Taxonomy, UniSTS,
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DEFINITION Rat skeletal muscle voltage-sensitive sodium channel alpha subunit
mRNA, complete cds.
ACCESSION M26643
VERSION M26643.1 GI:205651
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Rattus.
REFERENCE 1 (bases 1 to 6957)
AUTHORS Trimmer,J.S., Cooperman,S.S., Tomiko,S.A., Zhou,J., Crean,S.M.,
Boyle,M.B., Kallen,R.G., Sheng,Z., Barchi,R.L., Sigworth,F.J.,
Goodman,R.H., Agnew,W.S. and Mandel,G.
TITLE Primary structure and functional expression of a mammalian skeletal
muscle sodium channel
JOURNAL Neuron 3 (1), 33-49 (1989)
MEDLINE 90148778
PUBMED 2559760
COMMENT Draft entry and computer-readable sequence for [1] kindly provided
by J.S.Trimmer, 02-AUG-1989.
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Revised: October 24, 2001.

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1: P15389. SODIUM CHANNEL PR...[gi:116452]

[BLink](#), [Related Sequences](#), [PubMed](#), [Taxonomy](#), [LinkOut](#)

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 DEFINITION SODIUM CHANNEL PROTEIN, CARDIAC MUSCLE ALPHA-SUBUNIT.
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 created: Apr 1, 1990.
 sequence updated: Apr 1, 1990.
 annotation updated: Dec 15, 1998.
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 xrefs (non-sequence databases): PFAM PF00520, PFAM PF00612
 KEYWORDS Ionic channel; Transmembrane; Ion transport; Voltage-gated channel;
 Glycoprotein; Duplication; Multigene family; Phosphorylation.
 SOURCE Norway rat.
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 Rattus.
 REFERENCE 1 (residues 1 to 2019)
 AUTHORS Rogart,R.B., Cribbs,L.L., Muglia,L.K., Kephart,D.D. and Kaiser,M.W.
 TITLE Molecular cloning of a putative tetrodotoxin-resistant rat heart
 Na⁺ channel isoform
 JOURNAL Proc. Natl. Acad. Sci. U.S.A. 86 (20), 8170-8174 (1989)
 MEDLINE 90046760
 PUBMED 2554302
 REMARK SEQUENCE FROM N.A.
 TISSUE=HEART

COMMENT

 This SWISS-PROT entry is copyright. It is produced through a
 collaboration between the Swiss Institute of Bioinformatics and
 the EMBL outstation - the European Bioinformatics Institute.
 The original entry is available from <http://www.expasy.ch/sprot>
 and <http://www.ebi.ac.uk/sprot>

[FUNCTION] THIS PROTEIN MEDIATES THE VOLTAGE-DEPENDENT SODIUM ION
 PERMEABILITY OF EXCITABLE MEMBRANES. ASSUMING OPENED OR CLOSED
 CONFORMATIONS IN RESPONSE TO THE VOLTAGE DIFFERENCE ACROSS THE
 MEMBRANE, THE PROTEIN FORMS A SODIUM-SELECTIVE CHANNEL THROUGH
 WHICH NA⁺ IONS MAY PASS IN ACCORDANCE WITH THEIR ELECTROCHEMICAL
 GRADIENT. IT IS A TETRODOTOXIN-RESISTANT NA⁺ CHANNEL ISOFORM.

[SUBCELLULAR LOCATION] INTEGRAL MEMBRANE PROTEIN.

[DOMAIN] THE SEQUENCE CONTAINS 4 INTERNAL REPEATS, EACH WITH 5
 HYDROPHOBIC SEGMENTS (S1,S2,S3,S5,S6) AND ONE POSITIVELY CHARGED
 SEGMENT (S4). SEGMENTS S4 ARE PROBABLY THE VOLTAGE-SENSORS AND ARE
 CHARACTERIZED BY A SERIES OF POSITIVELY CHARGED AMINO ACIDS AT
 EVERY THIRD POSITION.

[MISCELLANEOUS] NA⁺ CHANNELS IN MAMMALIAN CARDIAC MEMBRANE HAVE
 FUNCTIONAL PROPERTIES QUITE DISTINCT FROM NA⁺ CHANNELS IN NERVE AND
 SKELETAL MUSCLE.

[SIMILARITY] TO OTHER SODIUM CHANNEL PROTEINS.

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Protein	1..2019 /gene="SCN5A" /product="SODIUM CHANNEL PROTEIN, CARDIAC MUSCLE ALPHA-SUBUNIT"
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Region	1298..1319
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1981 dsvtratsdn lpvrasdysr sedladfpps pdrdresiv
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Revised: October 24, 2001.

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Protein

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1: Q99250. Sodium channel pr...[gi:6648080]

BLink, OMIM, Related Sequences, PubMed, Taxonomy,
LinkOut

LOCUS CIN2_HUMAN 2005 aa linear PRI 01-MAR-2002
DEFINITION Sodium channel protein, brain II alpha subunit.
ACCESSION Q99250
PID g6648080
VERSION Q99250 GI:6648080
DBSOURCE swissprot: locus CIN2_HUMAN, accession Q99250;
class: standard.
extra accessions: Q14472, created: Jun 1, 1994.
sequence updated: May 30, 2000.
annotation updated: Mar 1, 2002.
xrefs: gi: 456678, gi: 457879, gi: 3075512, gi: 3075513, gi: 36419,
gi: 36420, gi: 338282, gi: 179560, gi: 12750754, gi: 418893
xrefs (non-sequence databases): MIM 182390, InterPro IPR001682,
InterPro IPR002111, InterPro IPR000048, InterPro IPR000636,
InterPro IPR001696, Pfam PF00520, Pfam PF00612, PRINTS PR00170,
SMART SM00015, PROSITE PS50096
KEYWORDS Ionic channel; Transmembrane; Ion transport; Voltage-gated channel;
Glycoprotein; Repeat; Multigene family.
SOURCE human.
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (residues 1 to 2005)
AUTHORS Ahmed, C.M., Ware, D.H., Lee, S.C., Patten, C.D., Ferrer-Montiel, A.V.,
Schinder, A.F., McPherson, J.D., Wagner-McPherson, C.B., Wasmuth, J.J.,
Evans, G.A. and Montal, M.
TITLE Primary structure, chromosomal localization, and functional
expression of a voltage-gated sodium channel from human brain
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 89 (17), 8220-8224 (1992)
MEDLINE 92390418
REMARK SEQUENCE FROM N.A.
TISSUE=Brain
REFERENCE 2 (residues 1 to 2005)
AUTHORS Lu, C.-M., Eichelberger, J.S., Beckman, M.L., Schade, S.D. and
Brown, G.B.
TITLE Direct Submission
JOURNAL Submitted (~APR-1998)
REMARK SEQUENCE OF 1-89 FROM N.A.
REFERENCE 3 (residues 1 to 2005)
AUTHORS Lu, C.M., Han, J., Rado, T.A. and Brown, G.B.
TITLE Differential expression of two sodium channel subtypes in human
brain
JOURNAL FEBS Lett. 303 (1), 53-58 (1992)
MEDLINE 92275082
REMARK SEQUENCE OF 1702-2005 FROM N.A.
TISSUE=Brain
REFERENCE 4 (residues 1 to 2005)
AUTHORS Han, J.A., Lu, C.M., Brown, G.B. and Rado, T.A.
TITLE Direct amplification of a single dissected chromosomal segment by
polymerase chain reaction: a human brain sodium channel gene is on

chromosome 2q22-q23

JOURNALProc. Natl. Acad. Sci. U.S.A. 88 (2), 335-339 (1991)

MEDLINE91110524

REMARKSEQUENCE OF 1702-1772 FROM N.A.

COMMENTOn Dec 30, 1999 this sequence version replaced gi:544037.

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[FUNCTION] THIS PROTEIN MEDIATES THE VOLTAGE-DEPENDENT SODIUM ION PERMEABILITY OF EXCITABLE MEMBRANES. ASSUMING OPENED OR CLOSED CONFORMATIONS IN RESPONSE TO THE VOLTAGE DIFFERENCE ACROSS THE MEMBRANE, THE PROTEIN FORMS A SODIUM-SELECTIVE CHANNEL THROUGH WHICH NA++ IONS MAY PASS IN ACCORDANCE WITH THEIR ELECTROCHEMICAL GRADIENT.

[SUBUNIT] THE SODIUM CHANNEL CONSISTS OF A LARGE POLYPEPTIDE AND 2-3 SMALLER ONES. THIS SEQUENCE REPRESENTS A LARGE POLYPEPTIDE.

[SUBCELLULAR LOCATION] Integral membrane protein.

[DOMAIN] THE SEQUENCE CONTAINS 4 INTERNAL REPEATS, EACH WITH 5 HYDROPHOBIC SEGMENTS (S1,S2,S3,S5,S6) AND ONE POSITIVELY CHARGED SEGMENT (S4). SEGMENTS S4 ARE PROBABLY THE VOLTAGE-SENSORS AND ARE CHARACTERIZED BY A SERIES OF POSITIVELY CHARGED AMINO ACIDS AT EVERY THIRD POSITION.

[SIMILARITY] TO OTHER SODIUM CHANNEL PROTEINS.

[SIMILARITY] CONTAINS 1 IQ DOMAIN.

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Protein	1..2005 /gene="SCN2A1" /product="Sodium channel protein, brain II alpha subunit"
Region	111..456 /gene="SCN2A1" /region_name="Repetitive region" /note="I."
Region	125..148 /gene="SCN2A1" /region_name="Transmembrane region" /note="S1 OF REPEAT I."
Region	157..176 /gene="SCN2A1" /region_name="Transmembrane region" /note="S2 OF REPEAT I."
Region	190..208 /gene="SCN2A1" /region_name="Transmembrane region" /note="S3 OF REPEAT I."
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5/11/02 2:59 PM

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1741 svkgdcgnps vgiffvsvyi iisflvvlm yaavilenfs vateesaep1 seddfemfye
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//

Revised: October 24, 2001.

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PubMed	Nucleotide	Protein	Genome	Structure	PopSet	Taxonomy	OMIM	Books
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Limits		Preview/Index		History		Clipboard		Details
Display		default	Save		Text		Add to Clipboard	

1: P04775. Sodium channel pr...[gi:116448]

[BLink](#), [Related Sequences](#), [PubMed](#), [Taxonomy](#), [LinkOut](#)

LOCUS CIN2_RAT 2005 aa linear ROD 16-OCT-2001
DEFINITION Sodium channel protein, brain II alpha subunit.
ACCESSION P04775
PID g116448
VERSION P04775 GI:116448
DBSOURCE swissprot: locus CIN2_RAT, accession P04775;
class: standard.
created: Aug 13, 1987.
sequence updated: Aug 13, 1987.
annotation updated: Oct 16, 2001.
xrefs: gi: 57214, gi: 57215, gi: 92753
xrefs (non-sequence databases): InterPro IPR002111, InterPro
IPR000636, InterPro IPR001682, InterPro IPR000048, InterPro
IPR001696, Pfam PF00520, Pfam PF00612, PRINTS PR00170, SMART
SM00015, PROSITE PS50096
KEYWORDS Ionic channel; Transmembrane; Ion transport; Voltage-gated channel;
Glycoprotein; Repeat; Multigene family.
SOURCE Norway rat.
ORGANISM Rattus norvegicus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
Rattus.
REFERENCE 1 (residues 1 to 2005)
AUTHORS Noda,M., Ikeda,T., Kayano,T., Suzuki,H., Takeshima,H., Kurasaki,M.,
Takahashi,H. and Numa,S.
TITLE Existence of distinct sodium channel messenger RNAs in rat brain
JOURNAL Nature 320 (6058), 188-192 (1986)
MEDLINE 86146901
REMARK SEQUENCE FROM N.A.
COMMENT

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collaboration between the Swiss Institute of Bioinformatics and
the EMBL outstation - the European Bioinformatics Institute.
The original entry is available from <http://www.expasy.ch/sprot>
and <http://www.ebi.ac.uk/sprot>

[FUNCTION] THIS PROTEIN MEDIATES THE VOLTAGE-DEPENDENT SODIUM ION
PERMEABILITY OF EXCITABLE MEMBRANES. ASSUMING OPENED OR CLOSED
CONFORMATIONS IN RESPONSE TO THE VOLTAGE DIFFERENCE ACROSS THE
MEMBRANE, THE PROTEIN FORMS A SODIUM-SELECTIVE CHANNEL THROUGH
WHICH NA++ IONS MAY PASS IN ACCORDANCE WITH THEIR ELECTROCHEMICAL
GRADIENT.

[SUBUNIT] THE SODIUM CHANNEL CONSISTS OF A LARGE POLYPEPTIDE AND
2-3 SMALLER ONES. THIS SEQUENCE REPRESENTS A LARGE POLYPEPTIDE.

[SUBCELLULAR LOCATION] INTEGRAL MEMBRANE PROTEIN.

[DOMAIN] THE SEQUENCE CONTAINS 4 INTERNAL REPEATS, EACH WITH 5
HYDROPHOBIC SEGMENTS (S1,S2,S3,S5,S6) AND ONE POSITIVELY CHARGED
SEGMENT (S4). SEGMENTS S4 ARE PROBABLY THE VOLTAGE-SENSORS AND ARE
CHARACTERIZED BY A SERIES OF POSITIVELY CHARGED AMINO ACIDS AT
EVERY THIRD POSITION.

[SIMILARITY] TO OTHER SODIUM CHANNEL PROTEINS.

[SIMILARITY] CONTAINS 1 IQ DOMAIN.

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gene	1..2005 /gene="SCN2A1" /note="SCN2A"
Protein	1..2005 /gene="SCN2A1" /product="Sodium channel protein, brain II alpha subunit"
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Region	125..148 /gene="SCN2A1" /region_name="Transmembrane region" /note="S1 OF REPEAT I."
Region	157..176 /gene="SCN2A1" /region_name="Transmembrane region" /note="S2 OF REPEAT I."
Region	190..208 /gene="SCN2A1" /region_name="Transmembrane region" /note="S3 OF REPEAT I."
Site	212 /gene="SCN2A1" /site_type="glycosylation" /note="N-LINKED (GLCNAC...) (POTENTIAL)."
Region	215..234 /gene="SCN2A1" /region_name="Transmembrane region" /note="S4 OF REPEAT I."
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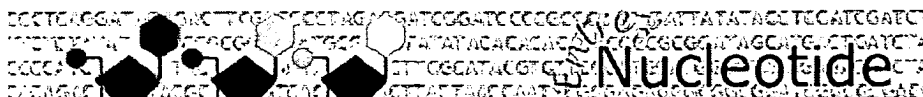
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Revised: October 24, 2001.

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1: X92184. R.norvegicus mRNA...[gi:1209466] Related Sequences, Protein, PubMed, Taxonomy, LinkOut

LOCUS RNSNS 6524 bp mRNA linear ROD 29-FEB-1996

DEFINITION *R.norvegicus* mRNA for voltage-gated sodium channel (SNS).

ACCESSION X92184

VERSION X92184.1 GI:1209466

KEYWORDS SNS gene; voltage-gated sodium channel.

SOURCE Norway rat.

ORGANISM *Rattus norvegicus*
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
Rattus.

REFERENCE 1 (bases 1 to 6524)
AUTHORS Akopian,A.N., Sivilotti,L. and Wood,J.N.
TITLE A tetrodotoxin-resistant voltage-gated sodium channel expressed by sensory neurons
JOURNAL Nature 379 (6562), 257-262 (1996)
MEDLINE 96138382

REFERENCE 2 (bases 1 to 6524)
AUTHORS Wood,J.N.
TITLE Direct Submission
JOURNAL Submitted (10-OCT-1995) J.N. Wood, University College, Dept of Anatomy & Developmental Biology, Gower Street, London WC1E 6BT, UK

FEATURES

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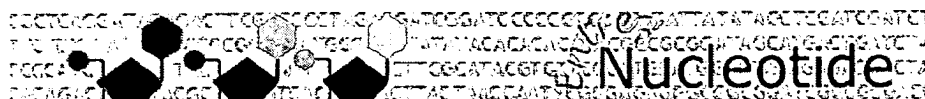
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Revised: October 24, 2001.

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Related Sequences, OMIM, Protein, PubMed, Taxonomy,
LinkOut

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VERSION U53833.1 GI:1280042
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Rattus.
REFERENCE 1 (bases 1 to 6344)
AUTHORS Sangameswaran,L., Delgado,S.G., Fish,L.M., Koch,B.D., Jakeman,L.B.,
Stewart,G.R., Sze,P., Hunter,J.C., Eglen,R.M. and Herman,R.C.
TITLE Structure and function of a novel voltage-gated,
tetrodotoxin-resistant sodium channel specific to sensory neurons
JOURNAL J. Biol. Chem. 271 (11), 5953-5956 (1996)
MEDLINE 96198040
PUBMED 8626372
REFERENCE 2 (bases 1 to 6344)
AUTHORS Sangameswaran,L., Delgado,S.G., Fish,L.M. and Herman,R.C.
TITLE Direct Submission
JOURNAL Submitted (08-APR-1996) Lakshmi Sangameswaran, Pharmacology,
Neurobiology Unit, Roche Bioscience, 3401, Hillview Avenue, Palo
Alto, CA 94304, USA
REFERENCE 3 (bases 1 to 6344)
AUTHORS Sangameswaran,L.B., Delgado,S.G., Fish,L.M., Koch,B.D.,
Jakeman,L.B., Stewart,G.R., Sze,P., Hunter,J.C., Eglen,R.M. and
Herman,R.C.
TITLE Additions and corrections to structure and function of a novel
voltage-gated, tetrodotoxin-resistant sodium channel specific to
sensory neurons
JOURNAL J. Biol. Chem. 271 (22), 13292-13292 (1996)
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Revised: October 24, 2001.

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1: P08104. Sodium channel pr...[gi:116449]

BLink, Related Sequences, PubMed, Taxonomy, LinkOut

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DEFINITION Sodium channel protein, brain III alpha subunit (Voltage-gated sodium channel subtype III).
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VERSION P08104 GI:116449
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created: Aug 1, 1988.
sequence updated: Aug 1, 1988.
annotation updated: Oct 16, 2001.
xrefs: gi: 57210, gi: 57211, gi: 92754
xrefs (non-sequence databases): InterPro IPR002111, InterPro IPR000636, InterPro IPR001682, InterPro IPR000048, InterPro IPR001696, Pfam PF00520, Pfam PF00612, PRINTS PR00170, SMART SM00015
KEYWORDS Ionic channel; Transmembrane; Ion transport; Voltage-gated channel; Glycoprotein; Repeat; Multigene family.
SOURCE Norway rat.
ORGANISM Rattus norvegicus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
REFERENCE 1 (residues 1 to 1951)
AUTHORS Kayano,T., Noda,M., Flockerzi,V., Takahashi,H. and Numa,S.
TITLE Primary structure of rat brain sodium channel III deduced from the cDNA sequence
JOURNAL FEBS Lett. 228 (1), 187-194 (1988)
MEDLINE 88137594
REMARK SEQUENCE FROM N.A.
STRAIN=WISTAR

COMMENT

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[FUNCTION] THIS PROTEIN MEDIATES THE VOLTAGE-DEPENDENT SODIUM ION PERMEABILITY OF EXCITABLE MEMBRANES. ASSUMING OPENED OR CLOSED CONFORMATIONS IN RESPONSE TO THE VOLTAGE DIFFERENCE ACROSS THE MEMBRANE, THE PROTEIN FORMS A SODIUM-SELECTIVE CHANNEL THROUGH WHICH NA++ IONS MAY PASS IN ACCORDANCE WITH THEIR ELECTROCHEMICAL GRADIENT.

[SUBUNIT] THE SODIUM CHANNEL CONSISTS OF A LARGE POLYPEPTIDE AND 2-3 SMALLER ONES. THIS SEQUENCE REPRESENTS A LARGE POLYPEPTIDE.

[SUBCELLULAR LOCATION] INTEGRAL MEMBRANE PROTEIN.

[DOMAIN] THE SEQUENCE CONTAINS 4 INTERNAL REPEATS, EACH WITH 5 HYDROPHOBIC SEGMENTS (S1,S2,S3,S5,S6) AND ONE POSITIVELY CHARGED SEGMENT (S4). SEGMENTS S4 ARE PROBABLY THE VOLTAGE-SENSORS AND ARE CHARACTERIZED BY A SERIES OF POSITIVELY CHARGED AMINO ACIDS AT

EVERY THIRD POSITION.
 [SIMILARITY] TO OTHER SODIUM CHANNEL PROTEINS.
 [SIMILARITY] CONTAINS 1 IQ DOMAIN.

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Region	156..175 /gene="SCN3A" /region_name="Transmembrane region" /note="S2 OF REPEAT I."
Region	189..207 /gene="SCN3A" /region_name="Transmembrane region" /note="S3 OF REPEAT I."
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1698..1722

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181	edftflrdpw	nwldfsivim	ayvtefvdlg	nvsalrtfrv	lralktisvi	pglktivgal
241	iqsvkklsdv	miltvfcslv	faliglqlfm	gnlrnkcsqw	ppsdsafetn	ttsyfngtmd
301	sngtfvntvm	stfnwkdyia	ddshfyvldg	qkdpllcgng	sdagqcpegy	icvkagrnpn
361	ygytsfdtfs	wafllslfrlm	tqdywenlyq	ltlraagkty	miffvlvifl	gsfylvnlll
421	avvamayeeq	nqatleeaeq	keaeffqgmle	qlkkqgeeaq	avaaasaasr	dfsgiggglge
481	llessseask	lssksakewr	nrrkkrrgre	hlegnhradg	drfpksesed	svkrrsflls
541	ldgnpltgdk	klcsphqsll	sirgslfspr	rnsktsifsf	rgrakdvkse	ndfaddehst
601	fedsesrrds	lfvphrpger	rnsngtttet	evrkrllssy	qismemleds	sgrqsrmsia
661	siltntmeel	eesrqkcppc	wyrfanvfli	wdcccawlkv	khlvnlivmd	pfvdlaitic
721	ivlntlfmam	ehypmtqqfs	svltvgnlvf	tgiftaemvl	kiiamdpyyy	fgegwnifdg
781	iivslslmel	glanveglsv	lrsfrllrvf	klakswptln	mlikiignsv	galgnltlvi
841	aaiivfifav	gmqlfgksyk	ecvckinvdc	klprwhmndf	fhsflivfrv	lcegewietmw
901	dcmevagqtm	clivfmlvmv	ignlvvlnlf	lalllssfss	dnlaatddd	emnnlqiavg
961	rmqkgidfvk	nkirecfrka	ffrkpkviei	qegnkidscm	snntgieisk	elnylkdgng
1021	ttsgvgtgss	vekyvidend	ymsfinnpsl	tvtvpiaave	sdfenlntee	fsseeseles
1081	keklnatsss	egstvdvapp	regegaeiep	eedlkpeacf	tegciikkpf	cqvsteegkg
1141	kiwwnlrktc	ysivehnwfe	tfivfmills	sgalafediy	ieqrktiktm	leyadkvfty
1201	ifilemllkw	vaygfgtyft	nawcwldfli	vdvslvslva	nalgytselga	ikslrtlral
1261	rplralrsef	gmrvvvnalv	gaipsimnvl	lvclifwlif	simgvnlifag	kfyhcvnttt
1321	gnmfeikevn	nfsdcqalgk	qarfwknvkn	fdnvgagyla	llqvafkkgw	mdimyaavds
1381	rdvklqpiye	enlymylyfv	ifiifgsfft	lnlfigviid	nfnqqkklkf	gqdifmteeq
1441	kkyynamkkl	gskkpqkpi	rpankfqgm	fdfvtrqvfd	isimilicln	mvmtmmvetdd
1501	qskymtlvls	rinlvfivlf	tgefllklis	lryyyftigw	nifdfvvvil	sivgmflael
1561	iekyfvsptl	frvirlarig	rilrlikgak	girtllfalm	mslpalfnig	lllflvmfiy
1621	aifgmsnfay	vkkeagiddm	fnfetfgnsm	iclfqittsa	gwdgllapil	nsappdcddp
1681	aihpgssvkg	dcgnpsvgif	ffvsyiiiisf	lvvvnmviav	ilenfsvate	esaeplesdd
1741	femfyevwek	fdpdatqfie	fcklsdfaaa	ldpplliakp	nkqvliamd	pmvsgdrihc
1801	ldilfaftkr	vlgesgemda	lriqmedrfm	asnpskvsye	pitttlkrkq	eevsaaaiqr
1861	nyrcyllkqr	lknisskydk	etikgridlp	ikgdmvidkl	ngnstpekt	gsssttspps
1921	ydsvtkpdke	kfekdkpeke	ikgkevrenq	k		

//

Revised: October 24, 2001.

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PubMed	Nucleotide	Protein	Genome	Structure	PopSet	Taxonomy	OMIM	Books
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1: P08104. Sodium channel pr...[gi:116449]

[BLink](#), [Related Sequences](#), [PubMed](#), [Taxonomy](#), [LinkOut](#)

LOCUS CIN3_RAT 1951 aa linear ROD 16-OCT-2001
 DEFINITION Sodium channel protein, brain III alpha subunit (Voltage-gated sodium channel subtype III).
 ACCESSION P08104
 PID g116449
 VERSION P08104 GI:116449
 DBSOURCE swissprot: locus CIN3_RAT, accession P08104;
 class: standard.
 created: Aug 1, 1988.
 sequence updated: Aug 1, 1988.
 annotation updated: Oct 16, 2001.
 xrefs: gi: 57210, gi: 57211, gi: 92754
 xrefs (non-sequence databases): InterPro IPR002111, InterPro IPR000636, InterPro IPR001682, InterPro IPR000048, InterPro IPR001696, Pfam PF00520, Pfam PF00612, PRINTS PR00170, SMART SM00015
 KEYWORDS Ionic channel; Transmembrane; Ion transport; Voltage-gated channel; Glycoprotein; Repeat; Multigene family.
 SOURCE Norway rat.
 ORGANISM Rattus norvegicus
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 REFERENCE 1 (residues 1 to 1951)
 AUTHORS Kayano,T., Noda,M., Flockerzi,V., Takahashi,H. and Numa,S.
 TITLE Primary structure of rat brain sodium channel III deduced from the cDNA sequence
 JOURNAL FEBS Lett. 228 (1), 187-194 (1988)
 MEDLINE 88137594
 REMARK SEQUENCE FROM N.A.
 STRAIN=WISTAR

COMMENT

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[FUNCTION] THIS PROTEIN MEDIATES THE VOLTAGE-DEPENDENT SODIUM ION PERMEABILITY OF EXCITABLE MEMBRANES. ASSUMING OPENED OR CLOSED CONFORMATIONS IN RESPONSE TO THE VOLTAGE DIFFERENCE ACROSS THE MEMBRANE, THE PROTEIN FORMS A SODIUM-SELECTIVE CHANNEL THROUGH WHICH NA++ IONS MAY PASS IN ACCORDANCE WITH THEIR ELECTROCHEMICAL GRADIENT.

[SUBUNIT] THE SODIUM CHANNEL CONSISTS OF A LARGE POLYPEPTIDE AND 2-3 SMALLER ONES. THIS SEQUENCE REPRESENTS A LARGE POLYPEPTIDE.

[SUBCELLULAR LOCATION] INTEGRAL MEMBRANE PROTEIN.

[DOMAIN] THE SEQUENCE CONTAINS 4 INTERNAL REPEATS, EACH WITH 5 HYDROPHOBIC SEGMENTS (S1,S2,S3,S5,S6) AND ONE POSITIVELY CHARGED SEGMENT (S4). SEGMENTS S4 ARE PROBABLY THE VOLTAGE-SENSORS AND ARE CHARACTERIZED BY A SERIES OF POSITIVELY CHARGED AMINO ACIDS AT

EVERY THIRD POSITION.
 [SIMILARITY] TO OTHER SODIUM CHANNEL PROTEINS.
 [SIMILARITY] CONTAINS 1 IQ DOMAIN.

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Protein	1..1951 /gene="SCN3A" /product="Sodium channel protein, brain III alpha subunit"
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Region	156..175 /gene="SCN3A" /region_name="Transmembrane region" /note="S2 OF REPEAT I."
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Region	800..820
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Region 1473..1496
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241 iqsvkklsdv mltyvfclsv faliglqlfm gnlnrkcsqw ppsdsafetn ttsyfngtmd
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661 siltntmeel eesrqkcppc wyrfanvfli wdccdawlkv khlvnlivmd pfvdlaitic
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781 iivslslmel glanveglsv lrsfrllrvf klakswptln mlikiignsv galgnltlvl
841 aiivfifavv gmqlfgksyk ecvckinvdc klprwhmndf fhsflivfrv lcgewietmw
901 dcmevagqtm clivfmlvmv ignlvvlnlf lalllssfss dnlaatddd emnnlqiavg
961 rmqkgidfvk nkirecfrka ffrkpkviei qegnkidscm snntgieisk elnylkdng
1021 ttsgvgtgss vekiyyidnd ymsfinnpsl tvtpiavge sdfenlntee fsseeseles
1081 keklnatsss egstvdvapp regegaeiep eedlkpeacf tegcikkpf cqvsteegkg
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1261 rplralrsfe gmrvvvnalv gaipsimnvl lvclifwllf simgvnlfg kfyhcvnttt
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1921 ydsvtkpdke kfejdkpeke ikgkevrenq k

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Revised: October 24, 2001.

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